ABSTRACT OF THE DISCLOSURE

In a method of producing an optical imaging system, for example a projection objective for microlithography, which has a plurality of optical elements, the imaging system is initially assembled and adjusted. In the process, at least one optical surface located in the vicinity of a pupil surface of the imaging system remains uncoated. During a subsequent measurement of the imaging system, for example using shearing interferometry, the wavefront errors in the exit pupil or an area conjugate therewith belonging to the imaging system are determined in a specially resolving manner. The optical element which has the correction surface is held in a separate mount and, following the measurement, is removed together with the mount. On the basis of the measurement, a topography and/or refractive index distribution of the correction surface which is required to compensate for the wavefront errors determined during the measurement is calculated. This topography, for example the local refractive index variation, is produced on the optical element removed by doping with foreign atoms with the aid of ion-beam etching by correct-coordinate material removal. Following subsequent coating of the correction surface in the mount, the processed optical element is installed again in its installed position in the imaging system. The method permits the production of optical imaging systems of complex construction with an excellent state of correction with reduced adjustment effort.

- - - - - - - - - - -